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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,948	12/16/2003	Chih-Min Tseng	TS03-222	5533

7590 01/25/2006

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EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,948

Applicant(s)

TSENG ET AL

Examiner

Sylvia R. MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 70-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 70-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al (US 5,820,689) in view of Okano et al (US 2005/0121051) and Lin et al (US 6,918,397).

Tseng et al teaches a wet chemical treatment system and method for cleaning such. The apparatus is inherently capable of removing dry film contaminants from a dry film solution, in that the apparatus comprises:

- a reservoir (inner tank 14) for receiving a dry-film removal solvent and comprising a support table (not shown, though inherently present to support the wafer so that the wafer is not unsecured in the tank making it prone to breakage)
- a pre-filter module (filter means 50)

Tseng et al fails to teach a) an ultrasonic unit disposed in the reservoir and b) a trap

Okano et al teaches a substrate cleaning apparatus comprising an ultrasonic transducer 4. The motivation to modify the apparatus of Tseng et al to include an ultrasonic transducer is that the use of ultrasonic energy agitates the wafer during cleaning enhancing the removal of particles on the wafer according to [008] to [012] of Okano. Thus, it would have been obvious for one of

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ordinary skill in the art at the time of the claimed invention to provide the ultrasonic transducer of Okano et al in the apparatus of Tseng et al.

The apparatus of Tseng et al modified by Okano fails to teach a trap in the filtering device.

Lin et al teaches a flush system with a pre-filter using a trap (loop screen 34). In col. 5 lines 11-27, Lin et al teaches that the motivation to use a trap is that it removes the larger particles from the solvent thereby reducing clogging of the particle filter 18. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a pre-filtering module using a trap in the apparatus of Tseng et al in view of Okano et al as taught by Lin et al.

Regarding claim 71: exit tubing and entry tubing are both illustrated in Fig. 5 of Tseng et al.

Regarding claim 72: Control valves 92,84, and 96 are illustrated in Fig. 5 of Tseng et al.

Regarding claim 73: Tseng et al fails to teach a pump. Okano et al teaches a pump P in the entry tubing, see Fig. 1. The motivation to modify the apparatus of Tseng et al to include a pump is that a pump is a known means of providing mass transport of fluids by contributing ample pressure to move the fluid from its origination point to its desired location. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a pump in the entry tubing of Tseng et al.

Regarding claims 74 and 74: The bypass tubing 86 and by-pass control valve 36 is illustrated in Fig. 5 of Tseng et al.

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3. Claims 76-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tseng et al in view of Okano et al and Lin et al as applied to claims 70-75 above, and further in view of Fury et al (US 6,857,437).

The teachings of Tseng et al modified by Okano et al and Lin et al were discussed above.

Regarding claims 76 and 77: This modification fails to teach a heater disposed in the reservoir.

Fury et al teaches a cleaning system with a heater 106, see Fig. 1. According to col. 4 lines 60-65, the motivation to provide heater in the cleaning tank is to raise the temperature in the tank. This promotes better control of the temperature of the tank contents. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a heater in the reservoir of Tseng et al in view of Okano et al and Lin et al.

Regarding claim 78: exit tubing and entry tubing are both illustrated in Fig. 5 of Tseng et al.

Regarding claim 79: Control valves 92,84, and 96 are illustrated in Fig. 5 of Tseng et al.

Regarding claim 80: Tseng et al fails to teach a pump. Okano et al teaches a pump P in the entry tubing, see Fig. 1. The motivation to modify the apparatus of Tseng et al to include a pump is that a pump is a known means of providing mass transport of fluids by contributing ample pressure to move the fluid from its origination point to its desired location. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a pump in the entry tubing of Tseng et al.

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Regarding claims 81 and 82: The bypass tubing 86 and by-pass control valve 36 is illustrated in Fig. 5 of Tseng et al.

4. Claims 70-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US 6,918,397) in view of Okano et al (US 2005/0121051).

Lin et al teaches a reservoir 11 for receiving a dry-film removal solvent and comprising a support table (not shown, though inherently present to support the wafer so that the wafer is not unsecured in the tank making it prone to breakage) and a prefilter module 34 with a trap (loop screen), see col. 5 lines 11-27, Lin et al teaches that the motivation to use a trap is that it removes the larger particles from the solvent thereby reducing clogging of the particle filter 18.

Regarding claim 70: Lin et al fails to teach an ultrasonic unit disposed in the reservoir. Okano et al teaches a substrate cleaning apparatus comprising an ultrasonic transducer 4. The motivation to modify the apparatus of Lin et al to include an ultrasonic transducer is that the use of ultrasonic energy agitates the wafer during cleaning enhancing the removal of particles on the wafer according to [008] to [012] of Okano. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the ultrasonic transducer of Okano et al in the apparatus of Lin et al.

Regarding claim 71: Exit tubing 26 and entry tubing 21 are illustrated in Fig. 4.

Regarding claim 72: Control valve 35 and 37 are connected to the exit tubing.

Regarding claim 73: Lin et al fails to teach a pump. Okano et al teaches a pump P in the entry tubing, see Fig. 1. The motivation to modify the apparatus of Lin et al to include a pump is that a pump is a known means of providing mass transport of fluids by contributing ample pressure to move the fluid from its origination point to its desired location. Thus, it would

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have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a pump in the entry tubing of Lin et al.

Regarding claims 74 and 75: Bypass tubing 39 and bypass control valve 41 are illustrated in Fig. 4 of Lin et al.

5. Claims 76-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al in view of Okano et al as applied to claims 70-75 above, and further in view of Fury et al (US 6,857,437).

The teachings of Lin et al modified by Okano et al were discussed above.

Regarding claims 76 and 77: This modification fails to teach a heater disposed in the reservoir.

Fury et al teaches a cleaning system with a heater 106, see Fig. 1. According to col. 4 lines 60-65, the motivation to provide heater in the cleaning tank is to raise the temperature in the tank. This promotes better control of the temperature of the tank contents. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a heater in the reservoir of Lin et al modified by Okano.

Regarding claim 78: Exit tubing 26 and entry tubing 21 are illustrated in Fig. 4.

Regarding claim 79: Control valve 35 and 37 are connected to the exit tubing.

Regarding claim 80: Lin et al fails to teach a pump. Okano et al teaches a pump P in the entry tubing, see Fig. 1. The motivation to modify the apparatus of Lin et al to include a pump is that a pump is a known means of providing mass transport of fluids by contributing ample pressure to move the fluid from its origination point to its desired location. Thus, it would have

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been obvious for one of ordinary skill in the art at the time of the claimed invention to provide a pump in the entry tubing of Lin et al.

Regarding claims 81 and 82: Bypass tubing 39 and bypass control valve 41 are illustrated in Fig. 4 of Lin et al.

Response to Arguments

6. Applicant's arguments with respect to claims 24-69 have been considered but are moot in view of the new ground(s) of rejection. New claims 70-75 require an ultrasonic unit be disposed in the reservoir hence the use of the prior art by Okano et al. Claims 76-82 require the use of a heater within the reservoir, hence the use of the prior art by Fury et al.

Conclusion

7. Applicant's amendment (requiring the ultrasonic unit in the reservoir and the heater within the reservoir) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 9 a.m. and 3 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Sylvia R MacArthur
Patent Examiner
Art Unit 1763

January 22, 2006

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SUPERVISORY PATENT EXAMINER